TOSHIBA

FILE NO. 060-9915

SERVICE MANUAL

COLOUR TELEVISION

S9E Chassis

14N1XE, 14N1XR
14N1XH, 14N1XRP
14N1XRY, 14N1XEP
14N1XEY, 14N1XHP
14N1XHY

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CHAPTER 1 GENERAL ADJUSTMENTS

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is Ⓐ kV at zero beam current (minimum brightness) under a Ⓒ V AC power source. The high voltage must not, under any circumstances, exceed Ⓑ kV.

Refer to table-1 for high voltage Ⓐ, Ⓑ & AC voltage Ⓒ
(See SETTING & ADJUSTING DATA on page 18)

   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; nonmetallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT

■ The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.
Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a kind of tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.

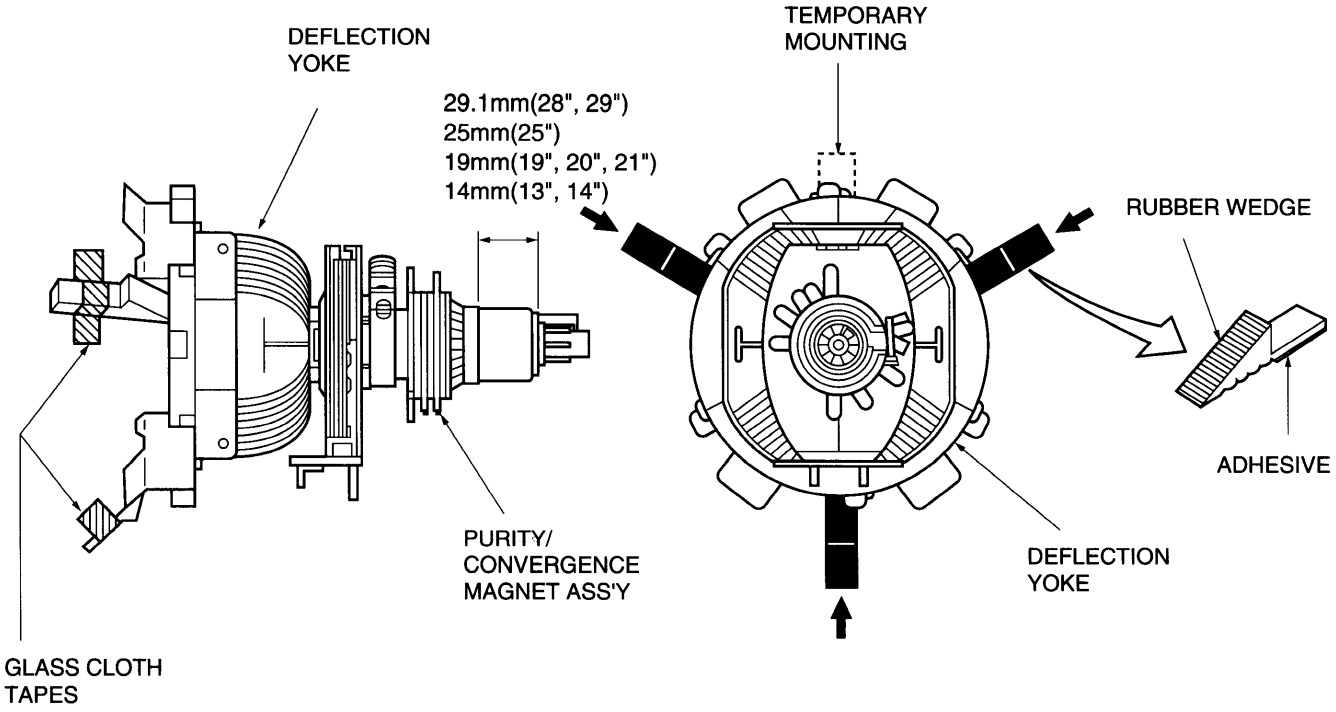


Figure 1.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Use the cross-dot pattern from among the built-in test signals.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 1.

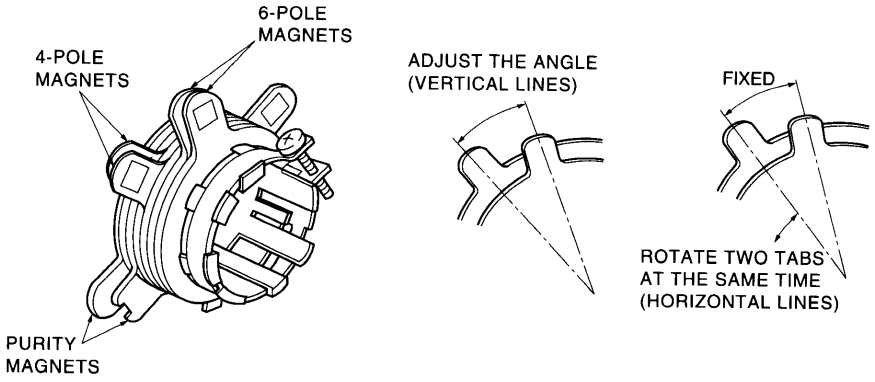


Figure 2.

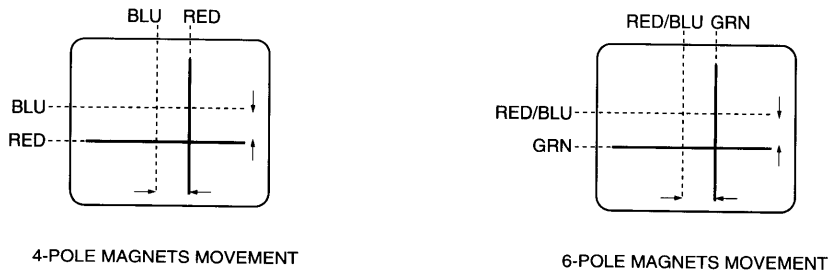


Figure 3. Dot Movement Pattern

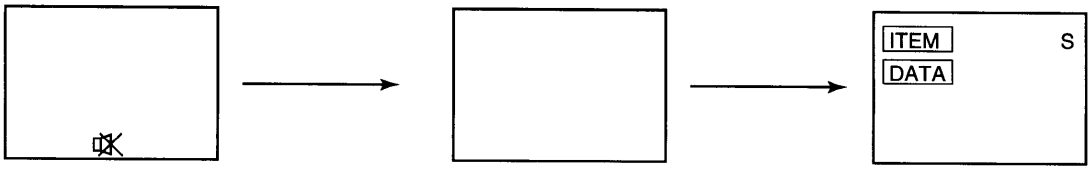
SERVICE MODE

1. ENTERING TO SERVICE MODE

1) Press 🔇 button once on Remote Control.

2) Press 🔇 button again to keep pressing.

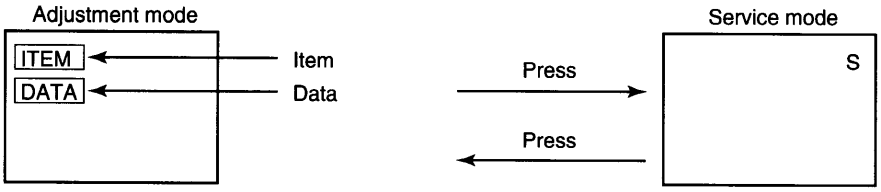
3) While pressing the 🔇 button, press MENU button on TV set.



(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF:	- / - - button (on Remote) or -⊖ button (on TV)
Test signal selection :	-⊖ button (on Remote)
Selection of the adjustment items :	CHANNEL ▲/▼ (on TV & Remote)
Change of the data value :	VOLUME ◿ +/– (on TV & Remote)
Adjustment menu mode ON/OFF :	MENU button on TV
Initialization of the memory (QA02) :	CALL + CHANNEL button on TV (▲)
Reset the count of operating protect circuit to "00":	CALL + CHANNEL button on TV (▼)
"RCUT" selection :	1 button
"GCUT" selection :	2 button
"BCUT" selection :	3 button
"CNTX" (or "SCNT") selection :	4 button
"COLC" selection :	5 button– – – – Color thickness correction
"TNTC" selection :	6 button note: Displayed differently as shown below, de-
Test audio signal ON/OFF (1kHz) :	8 button pending on the setting of the receiving color
Self diagnostic display ON/OFF :	9 button system.
	COLP (PAL)
	COLC (NTSC)
	COLS (SECAM)

CAUTION : Never try to perform initialization unless you have changed the memory IC.

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

[redacted]

5. ADJUSTING THE DATA

1) Pressing of VOLUME ◿ +/– button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

After replacing QA02, the following initialization is required.

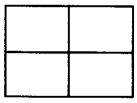
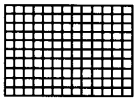
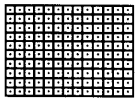
1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
3. Check the picture carefully. If necessary, adjust any adjustment item above. Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

7. TEST SIGNAL SELECTION

Every pressing of ⊖ button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.

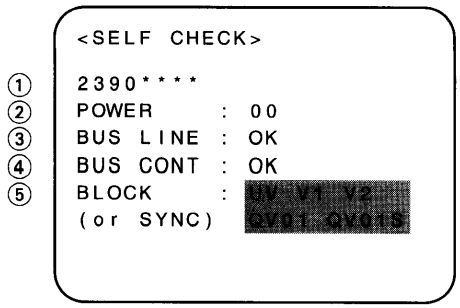
Signal off ⟶ NTSC signals (14 patterns)
⟵ PAL signals (14 patterns) ⟵

Signals	Picture
[redacted] • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar [redacted]	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
[redacted]	

* The signals marked with ▩ are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

1) Press "9" button on Remote Control during display of adjustment menu in the service mode.
   The diagnosis will begin to check if interface among IC's are executed properly.
2) During diagnosis, the following displays are shown.



Indicated color of mode now selected : Green and Red
Indicated color of other modes : White

Green : Normal
Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.
QV01 : In case of indication green ---Normal
In case of indication red with input signal----
Failure may exist in output line including QV01.

① Part number of microcomputer (QA01)
② Operation number of protecting circuit ----"00" is normal.
When indication is other than "00", overcurrent apts to flow, and circuit parts may possibly be damaged.
③ BUS LINE CHECK ----"OK" is normal.
"SCL(SCL1)-GND" ..... SCL-GND short circuit
"SDA(SDA1)-GND" ..... SDA-GND short circuit
"SCL(SCL1)-SDA (SDA1)"... SCL-SDA short circuit
④ BUS CONT ----"OK" is normal.
When indication shows "Q○○○ NG", the device with the number may possibly be damaged.
⑤ BLOCK ----"OK" is normal.
UV : TV reception mode
V1 : VIDEO 1 input mode (-C1)
V2 : VIDEO 2 input mode (-C2)

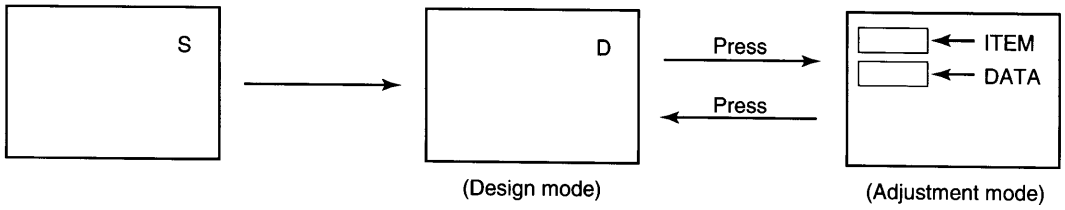
NOTE: Component which controls character display on screen is QT01 (TELETEXT IC). If this display function fails to operate due to damage in QT01, self diagnosis procedure is as follows.
(1) In case that power indicator is blinking with interval of 0.5 seconds, it means protecting circuit (Current limiter) is operating, and circuit components may possibly be damaged. Check related components.
(2) In case that power indicator is blinking with interval of 1 second, Protecting circuit does not operate, but a part of Bus line does not operate normally. Check Bus line.

* The items marked with ■ are not usable to display in the SELF DIAGNOSTIC FUCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

1) Select the Service mode. 2) While pressing 🔇 (or CALL) button on Remote and press MENU button on TV. 3) Press MENU button on TV.



(Design mode) (Adjustment mode)

When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.
Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

2. SELECTING THE ADJUSTING ITEMS

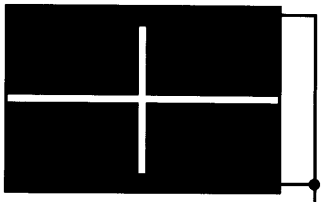
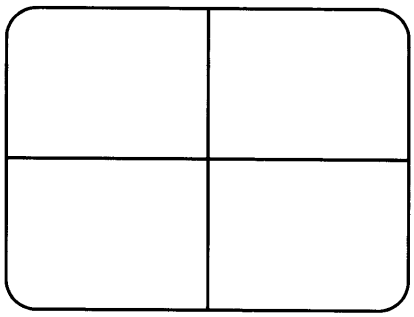
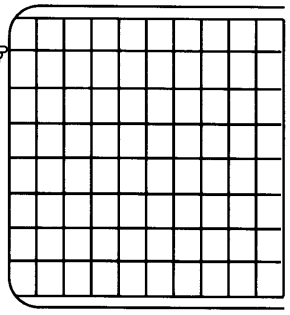
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3.

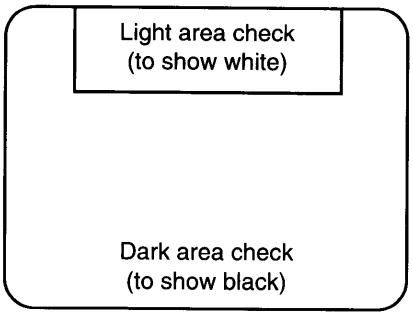
Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 18)

3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ (◿ +/–) button will change the value of data.

ELECTRICAL ADJUSTMENT

ITEM	ADJUSTMENT PROCEDURE
FOCUS VR ADJ.	1. Enter the service mode, then select any register item. 2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen. 3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.
SUB-BRIGHTNESS (BRTC) Note: Constrict the picture height until the vertical retrace line appears adjusting the item HIT (HEIGHT).	1. Set CONTRAST to minimum, and BRIGHTNESS to center by adjusting user controls. 2. Set the TV in service mode to get white cross-bar of inside pattern. 3. Select BRTC (brightness correction), and adjust the ◿ – /+ button to reduce the value so that white portion of inside pattern slightly light. 4. Adjust ◿ – /+ button to increase the data value of BRTC, and set it just before the difference between the belt of vertical retrace and the border of black portion of inside pattern is visible. After that, return vertical height and contrast.  Belt of vertical retrace
HORIZONTAL POSITION ADJUSTMENT (HPOS) VERTICAL POSITION ADJUSTMENT (VPOS)	1. Set the TV in service mode, and get black or white cross-bar signal with VIDEO button on remote hand unit. 2. Select either HPOS (Horizontal picture phase) or VPOS (Vertical picture phase) with CHANNEL ▲, ▼ buttons, and adjust horizontal or vertical picture position in the center of screen with VOLUME ◿ – /+ buttons. 
VERTICAL AMPLITUDE ADJUSTMENT (HIT)	1. Set the TV in service mode, and get black or white cross-hatch signal with VIDEO button on remote hand unit. 2. Select HIT (Vertical amplitude) with CHANNEL ▲, ▼ buttons, and adjust vertical amplitude with VOLUME ◿ – /+ buttons so that vertical amplitude lacks a little. 3. Adjust vertical amplitude with VOLUME ◿ – /+ buttons so that the first bar on cross-hatch signal touches edge of screen. The first 

ITEM	ADJUSTMENT PROCEDURE
WHITE BALANCE ADJUSTMENT ● CUTOFF ADJUSTMENT (RCUT) (GCUT) (BCUT) ● DRIVE ADJUSTMENT (GDRV) (BDRV)	1. Set Contrast to 40, and brightness to +20 by picture control. 2. Set the TV in service mode, and get the inside W/B adjusting signal with VIDEO button. 3. Select RCUT, GCUT and BCUT with CHANNEL ▲, ▼ buttons, to set individual values to 20, and to set GDRV and BDRV to 80 with VOLUME ◿ – /+ buttons. 4. Press VIDEO button on TV set and rotate Screen VR to get one slight horizontal line on screen. Note: Every pressing of VIDEO button provides Horizontal line picture and Normal picture alternately. 5. Press VIDEO button to release horizontal line picture, and select the two other colors which did not light in the above step with CHANNEL ▲, ▼ buttons. Then tap VOLUME ◿ – /+ buttons so that three colors slightly light in the same level. ※ To correct white balance in light area, select GDRV and BDRV with CHANNEL ▲, ▼ buttons to adjust. ※ To correct white balance in dark area, perform fine adjustment of RCUT, GCUT and BCUT. 

Model S9E series (Reference factory adjustments)

Name. AFT.f0

SETTING. IF.OUT pin (H001) 1000pF load. (IF out Round open)

Input signal. SIGNAL : CW F=38.0M 95dB (μ V) (75 Ω load)

Measurement place. TP-13

Adjustment method. Adjust L161 at the point that have critical change of voltage.

Making standard. STANDERD : 2.5V±0.5V

NOTE : The place which detecter high and low.

Name. RF AGC DELAY

SETTING. IF OUT pin (H001) 1000pF load. (IF out Round open)

Input signal. CW F=38.0M 95dB (μ V) (75 Ω load)

Measurement place. TP-15

Adjustment method. Adjust the sub address [RAGC]

Making standard. 4.0V±2V

Name. SUB-CONTRUST

SETTING.

Input signal.

Measurement place.

Adjustment method.

Making standard.

Name. SUB-BRIGHT CENTER

SETTING. Set user control setting to STANDERD 1

Input signal. SUB-BRIGHT SIGNAL

Measurement place. On picture

Adjustment method. It is black step of the (*sub-bright*) signal and adjust the number.

Making standard. 4±1.5 bars

*Note : Adjust at last

Item. [COLP] NO ADJUSTMENT

Name. SUB-COLOR CENTER (PAL)

SETTING.

Input signal.

Measurement place.

Adjustment method.

Making standard.

Item. [TNTC]

Name. SUB-TINT CENTER (For M-NTSC MODEL)

SETTING. CHROMA ADJUSTMENT MODE

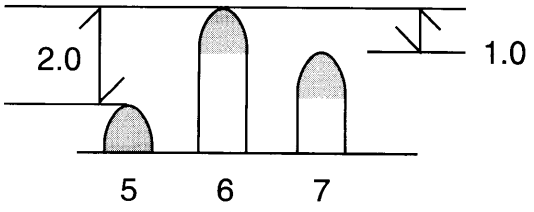
Input signal. SUB-BRIGHT SIGNAL (NTSC)

Measurement place. Q501 #20 (B OUT)

Adjustment method. The 5th position to the 6th level of B-Y signal and the 7th level difference should regulate to 2:1.

Making standard. −5.0° ±5°

Note : Adjust before [COLC]



Item. [COLC]

Name. SUB-COLOR CENTER (NTSC/PAL)

SETTING. CHROMA ADJUSTMENT MODE

Input signal. SUB-BRIGHT SIGNAL (NTSC) For M-NTSC MODEL

SUB-BRIGHT SIGNAL (PAL) For OTHER MODEL

Measurement place. Q501 #20 (B OUT)

Adjustment method. Adjust the amplitude of B-Y.

Making standard. 1.35 ±0.2V(p-p)

[RCUT], [GCUT], [BCUT], [GDRV], [BDRV], [SCREEN VR]

Name. CUT OFF/DRIVE ADJUST

SETTING. [RCUT], [GCUT], [BCUT] each data set = 20H

[GDRV], [BDRV] each data set = 40H

Set to White line mode

EG.DEPT STD CA-100

Input signal. White signal		light	dark	light	dark
Measurement place. On picture.	X	271	271	299	299
Adjustment method.	Y	276	281	302	302
		(Except XR MODEL)		(XR MODEL)	

Raise screen VR gradually and stop in the place where the line of either of R or G or B shines slightly. Decide the position of screen VR there.

Raise the CUT-OFF data other than the line which shines by first gradually shine point.

Stop in the place which shines in most white. Make clear white line mode.

Adjust it repeatedly for both the shade part and discernment to become a correct numerical value by using proofread CA100.

Making standard.

103cd/m² 11500K +0.0075uv 17cd/m² 10500K +0.0105uv (Except XR MODEL)

103cd/m² 8750K –0.0020uv 17cd/m² 8750K –0.0020uv (XR MODEL)

FOR SECAM MODEL ONLY

Item. [BELL] NO ADJUSTMENT

Name. BELL FILTER

SETTING.

Input signal.

Measurement place.

Adjustment method.

Making standard.

Item. [SRY]

Name. SECAM R-Y BLACK LEVEL. SETTING

Input signal. SECAM COLOR BAR.

Measurement place. Q501 #18 (R-out)

Adjustment method. Adjust [SRY] the level of the monochrome signal part must be a match to the level of horizontal blanking signal.

(Adjust this item after adjust [COLS])

Making standard. 0±40mV (p-p)

Item. [SBY]

Name. SECAM B-Y BLACK LEVEL.

SETTING.

Input signal. SECAM COLOR BAR.

Measurement place. Q501 #20 (B-out)

Adjustment method. Adjust [SBY] the level of the monochrome signal part must be a mutch to the level of horizontal blanking signal.

(Adjust this item after adjust [COLS])

Making standard. 0±40mV (p-p)

Item. [COLS]

Name. SUB-COLOR CENTER (SECAM).

SETTING. CHROMA ADJUSTMENT MODE

Input signal. SECAM COLOR BAR.

Measurement place. Q501 #20 (B OUT)

Adjustment method. Adjust the amplitude of B-Y. (Mute the picture in adjustment)

Making standard. 1.75±0.2V (0-p)

Item. [VERT POSITION]

SETTING. CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal. WG Philips Pattern (Do not use French SECAM).

Measurement place. On Picture

Adjustment method. Adjust [VPOS] upper and lower position in Philips pattern may become a center._(Turn the direction of CPT to the south or the north when adjusting. Adjust the amount offsetting if it is not possible to do.)

Item. [V-HEIGHT]

SETTING. CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal. WG Philips Pattern (Do not use French SECAM).

Measurement place. On Picture

Adjustment method. Adjust the sub address [HIT] of Philips pattern may hide frag of the upper and lower sides in exactly.

Item. [HORIZONTAL POSITION]

SETTING. CONTRAST=MAX. BRIGHT=CENTER COLOR=CENTER

Input signal. WG Philips Pattern (Do not use French SECAM).

Measurement place. On Picture

Adjustment method. Adjust the sub address [HPOS] of Philips pattern to center.

(Minimize D-C in the adjustment magnetic field on CRT.)

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage must be measured below Ⓑ kV.

Refer to table-1 for high voltage Ⓑ.
(See SETTING & ADJUSTING DATA on page 18)

4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

CHAPTER 2 SPECIFIC INFORMATIONS

SETTING & ADJUSTING DATA

【 SAFETY INSTRUCTIONS 】

		14"
HIGH VOLTAGE AT ZERO BEAM:	Ⓐ	25.1 kV
MAX HIGH VOLTAGE:	Ⓑ	26.6 kV
AC VOLTAGE :	Ⓒ	110 V–240 V

Table-1

【 SERVICE MODE 】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Adjustments	Reference data
RCUT	R CUTOFF	20H
GCUT	G CUTOFF	20H
BCUT	B CUTOFF	20H
GDRV	G DRIVE	40H
BDRV	B DRIVE	40H
CNTX	SUB CONTRAST MAX	3FH
BRTC	SUB BRIGHT CEN	40H
COLC	SUB COLOR CEN NTSC	40H
TNTC	SUB TINT CEN	40H
COLP	SUB COLOR CEN PAL	00H
COLS	SUB COLOR CEN SECAM	40H

Item	Adjustments	Reference data
SCNT	Y-SUB CONTRAST	08H
HPOS	50Hz HORIZONTAL POSITION	11H
VPSO	VERTICAL POSITION	03H
HIT	HIT	20H
VLIN	V-LINEARITY	08H
VSC	V-S CORRECTION	00H
SBY	SECAM B-Y	08H
SRY	SECAM R-Y	08H
RAGC	RF AGC	30H
PWR	CURR LIMIT	00H
BUS	BUS LINE	00H
MEM	MEMORY CHECK	00H

Table-2

【 DESIGN MODE 】

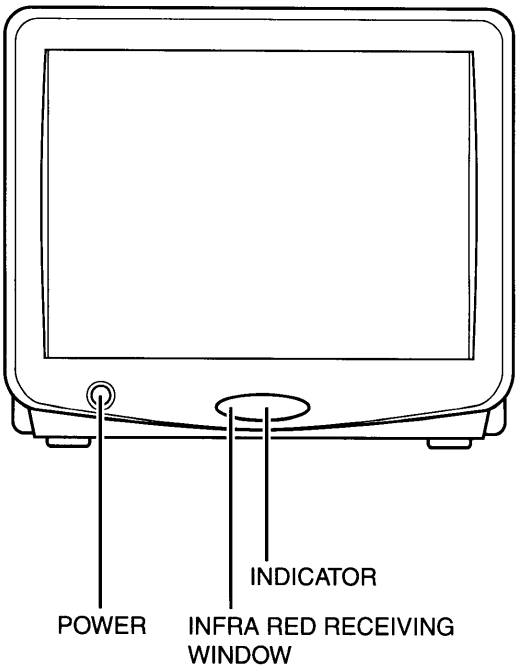
ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data	Remarks
* There are no adjustment in the DESIGN MODE.				

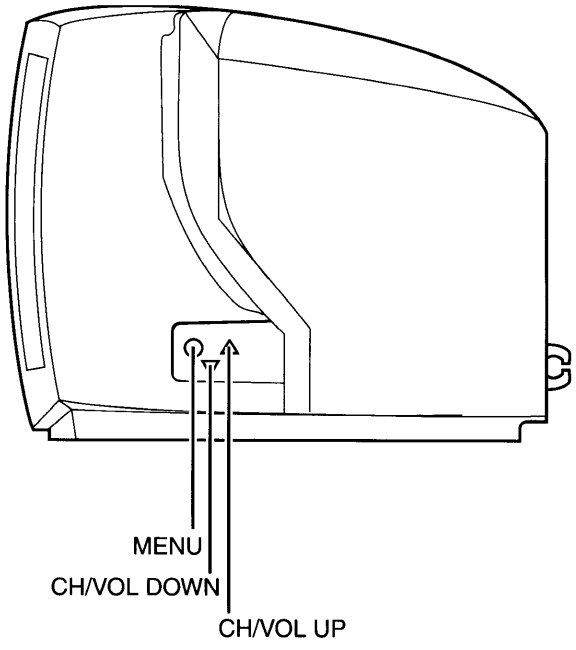
Table-3

LOCATION OF CONTROLS

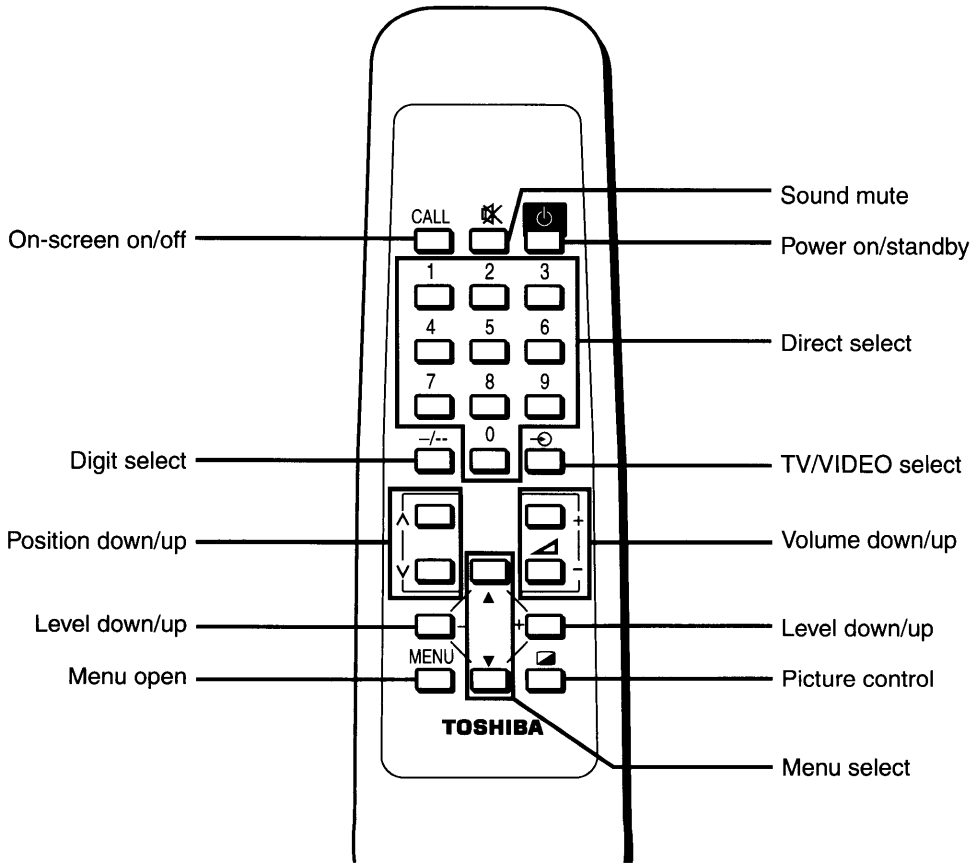
Front



Side



Remote



PROGRAMMING CHANNEL MEMORY

Auto search memory (ASM)

All the channels that can be received are preset automatically.

1 Select the position for starting ASM, (0~9) or (∨ / ∧).
2 Set the correct broadcast system for your region.
Press (MENU) repeatedly to call up the SET UP menu on the upper right of the screen.
And set COLOR to AUTO and select the SOUND according to the table below by (▼/▲) and (–/+).
3 Select ASM, then press (+) to start the ASM. Return to the start position. This completes the procedure.

Broadcast Transmission Systems in Each Country

Area	Country	System	
		Colour	Sound
Asia M.E.	Bahrain, Kuwait, Israel, Oman, Qatar, United Arab Emirates, Yemen, etc. Indonesia, Malaysia, Singapore, Thailand, etc	PAL	B/G
	China, etc	PAL	D/K
	Hong Kong	PAL	I
	Iraq, Iran, Lebanon, Saudi Arabia, etc	SECAM	B/G
	Russian Federation, etc	SECAM	D/K
	Myanmar, etc	NTSC	M
Oceania	Australia, New Zealand, etc	PAL	B/G

Note.
"B/G" and "D/K" will be displayed as "BG" and "DK" on the screen. PAL, SECAM and 358NTSC are different colour signal broadcast transmission systems applicable to different countries. 443NTSC is used in special VTRs to playback NTSC recorded video tapes through PAL television equipment.
[358NTSC = NTSC 3.58MHz, 443NTSC = NTSC 4.43 MHz]

Manual Search and Changing the assigned position

(Example) Presetting Channel 12 to Position 12

(Method 1) — **When Channel 12 is not preset to either channel→ Manual Search**

1 Select Position 12.
Press (∨ / ∧) repeatedly until 12 is displayed.
Or, press (–/– –) once or twice to display – – on the screen.
Press 1 and 2 at Remote in that order.

2 Press (MENU) several times to display the SET UP menu screen.
Press (▼/▲) and select ">>>". Press (–/+) to search. Pressing "–" searches lower frequency channel; pressing "+" searches higher frequency channels.

3 When Channel 12 is set, press (▼/▲) to select " ⊕ ". Press "+" (–/+) to complete the presetting.

To turn off the menu function display instantly
Press the (CALL) button.

(Method 2) — **When Channel 12 is preset to another position**
→ Change the assigned position.

1 Press (0~9) or (∨ / ∧) to find the position preset for Channel 12.

2 When Channel 12 is set, press (MENU) several times to display the SET UP menu screen. Press (▼/▲) to select the item "POSITION". And press (–/+) repeatedly to set the position number "P12". Pressing "–" displays a smaller number; pressing "+" displays a larger number.

3 When Position 12 is set, press (▼/▲) to select the item " ⊕ ".
Press "+" (–/+) to complete the presetting.

To turn off the menu function display instantly
Press the (CALL) button.

Skip function

If you set SKIP ON for unnecessary position numbers, when you select channels with (∨ / ∧), that position is skipped.

(Example) Skipping position 13

1 Select Position 13.
Press (∨ / ∧) repeatedly until 13 is displayed.
Or, press (–/– –) once or twice to display – – on the screen.
Press 1 and 3 at Remote in that order.

2 Press (MENU) several times to display the SET UP menu screen. Press (▼/▲) to select the item "SKIP". Press (–/+) to switch from OFF to ON. This completes the setting.

To turn off the menu function display instantly
Press the (CALL) button.

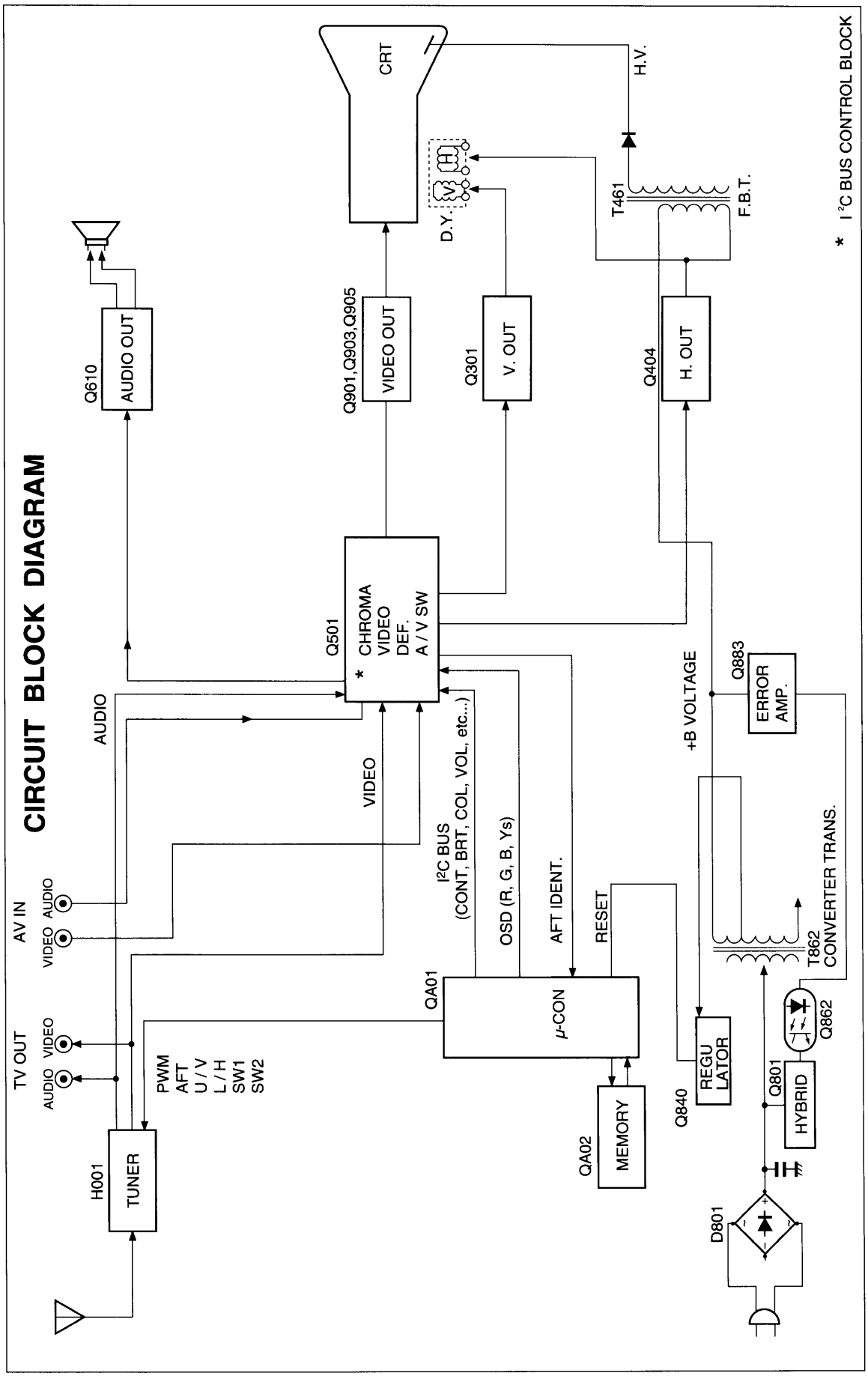
Note • When SKIP is on, "*"is added to the left of the position number. Example: *13
Select position 13 with (–/– –) and (1, 3) to confirm "*"mark.
• If you want to restore a skipped position number, select the skippied position number with (–/– –) and (1, 3) buttons and Switch from ON to OFF on step 2 above.

Manual fine tuning (MFT)

Press (MENU) several times to display the SET UP menu screen.
Press (▼/▲) and select MFT. Press (–/+) to start fine tuning. Pressing "–" fine tunes to a lower frequency; pressing "+" fine tunes to a higher frequency.

To turn off the menu function display instantly
Press the (CALL) button.

*Please refer to owner's manual in detail.


CIRCUIT BLOCK DIAGRAM
CRT
H.V.
D.Y.
T461
F.B.T.
Q610
AUDIO OUT
Q901,Q903,Q905
VIDEO OUT
Q301
V. OUT
Q404
H. OUT
* I²C BUS CONTROL BLOCK
AV IN
AUDIO
VIDEO
TV OUT
AUDIO
VIDEO
PWM
AFT
U / V
L / H
SW1
SW2
H001
TUNER
AUDIO
VIDEO
Q501
* CHROMA
VIDEO
DEF.
A / V SW
I²C BUS
(CONT, BRT, COL, VOL, etc...)
OSD (R, G, B, Ys)
AFT IDENT.
RESET
QA01
μ-CON
QA02
MEMORY
+B VOLTAGE
Q883
ERROR
AMP.
Q840
REGU
LATOR
T862
CONVERTER TRANS.
Q862
Q801
HYBRID
D801

CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

NOTICE:
- *The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.*
- *The PC board assembly with ∗ mark is no longer available after the end of the production.*

Models : 14N1XE, 14N1XR, 14N1XH, 14N1XRP, 14N1XRY, 14N1XEP, 14N1XEY, 14N1XHP, 14N1XHY

Capacitors	CD	: Ceramic Disk	PF	: Plastic Film	EL	: Electrolytic
Resistors	CF	: Carbon Film	CC	: Carbon Composition	MF	: Metal Film
	OMF	: Oxide Metal Film	VR	: Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C106	24796479	EL, 4.7μF, ±20%, 35V
C108	24539474	PF, 0.47μF
C110	24815221	CD, 220pF, ±10%
C111	24815102	Chip, 0.001μF, ±10%
C112	24797100	EL, 10μF, ±20%, 50V
C113	24591104	PF, 0.1μF
C114	24591104	PF, 0.1μF
C115	24591104	PF, 0.1μF
C116	24591104	PF, 0.1μF
C118	24815102	Chip, 0.001μF, ±10%
C119	24794221	EL, 220μF, ±20%, 16V
C121	24794100	EL, 10μF, ±20%, 16V
C122	24794100	EL, 10μF, ±20%, 16V
C123	24794100	EL, 10μF, ±20%, 16V
C124	24794470	EL, 47μF, ±20%, 16V
C125	24814103	Chip, 0.01μF, +80%, -20%
C126	24815333	CD, 0.033μF, ±10%
C127	24591104	PF, 0.1μF
C129	24285102	Chip, 1000pF, ±10%
C150	24814103	Chip, 0.01μF, +80%, -20%
C161	24797478	EL, 0.47μF, ±20%, 50V
C162	24285332	Chip, 3300pF, ±10%
C166	24287103	CD, 0.01μF, +80%, -20%, 50V
C167	24763101	EL, 100μF, ±20%, 16V
C168	24794100	EL, 10μF, ±20%, 16V
C170	24814103	Chip, 0.01μF, +80%, -20%
C180	24797010	EL, 1μF, ±20%, 50V
C181	24814103	Chip, 0.01μF, +80%, -20%
C182	24763101	EL, 100μF, ±20%, 16V
C212	24797010	EL, 1μF, ±20%, 50V
C216	24797010	EL, 1μF, ±20%, 50V
C221	24781100	Chip, 10pF, ±0.5pF%, SL
C222	24781100	Chip, 10pF, ±0.5pF%, SL
C223	24781100	Chip, 10pF, ±0.5pF%, SL
C224	24797100	EL, 10μF, ±20%, 50V
C225	24591104	PF, 0.1μF
C226	24591104	PF, 0.1μF
C233	24073077	EL, 0.1μF, ±20%, 50V
C301	24617915	EL, 1μF, ±10%, 50V
C302	24591152	PF, 1500pF

Location No.	Part No.	Description
C305	24617915	EL, 1μF, ±10%, 50V
C306	24073043	EL, 2200μF, ±20%, 16V
C307	24693473	PF, 0.047μF, 100V
C308	24668101	EL, 100μF, ±20%, 35V
C309	24591102	PF, 1000pF
C310	24668102	EL, 1000μF, ±20%, 35V
C311	24214681	CD, 680pF, ±10%, 500V
C313	24082057	PF, 0.22μF, 100V
C314	24591563	PF, 0.056μF
C317	24214471	CD, 470pF, ±10%, 500V
C320	24668101	EL, 100μF, ±20%, 35V
C370	24794101	EL, 100μF, ±20%, 16V
C371	24794220	EL, 22μF, ±20%, 16V
C403	24591822	PF, 8200pF
C404	24797478	EL, 0.47μF, ±20%, 50V
C408	24591183	PF, 0.018μF
C409	24285221	Chip, 220pF, ±10%
C410	24693472	PF, 4700pF, 100V
C417	24214102	CD, 1000pF, ±10%, 500V
C420	24666220	EL, 22μF, ±20%, 16V
C421	24666470	EL, 47μF, ±20%, 16V
C430	24814103	Chip, 0.01μF, +80%, -20%
C431	24794102	EL, 1000μF, ±20%, 16V
C432	24287103	CD, 0.01μF, +80%, -20%, 50V
C433	24073015	EL, 47μF, ±20%, 10V
C435	24797479	EL, 4.7μF, ±20%, 50V
C439	24814103	Chip, 0.01μF, +80%, -20%
C440	24082422	PF, 0.0072μF, 1250V
C442	24082969	PF, 0.39μF, 250V
C445	24828563	PF, 0.056μF, 200V
C446	24679220	EL, 22μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C449	24666101	EL, 100μF, ±20%, 16V
C463	24815152	CD, 0.0015μF, ±10%
C511	24797010	EL, 1μF, ±20%, 50V
C512	24815222	Chip, 0.0022μF, ±10%
C516	24814103	Chip, 0.01μF, +80%, -20%
C517	24763101	EL, 100μF, ±20%, 16V
C521	24591104	PF, 0.1μF
C522	24591104	PF, 0.1μF
C523	24591104	PF, 0.1μF

Location No.	Part No.	Description
C524	24763101	EL, 100μF, ±20%, 16V
C525	24814103	Chip, 0.01μF, +80%, -20%
C526	24591222	PF, 2200pF
C527	24774100	Chip, 10pF, ±0.5pF, CH
C528	24206228	EL, 0.22μF, ±20%, 50V
C605	24814103	Chip, 0.01μF, +80%, -20%
C606	24797229	EL, 2.2μF, ±20%, 50V
C607	24667221	EL, 220μF, ±20%, 25V
C608	24797229	EL, 2.2μF, ±20%, 50V
C609	24591472	PF, 4700pF
C610	24667220	EL, 22μF, ±20%, 25V
C611	24591104	PF, 0.1μF
C612	24794470	EL, 47μF, ±20%, 16V
C613	24795471	EL, 470μF, ±20%, 25V
C614	24797478	EL, 0.47μF, ±20%, 50V
C615	24794100	EL, 10μF, ±20%, 16V
C621	24591103	PF, 0.01μF
C623	24794220	EL, 22μF, ±20%, 16V
⚠C801	24503002	PF, 0.22μF, ±20%, AC275V
C808	24667101	EL, 100μF, ±20%, 25V
C810	24086059	EL, 270μF, ±20%, 400V
⚠C813	24092555	CD, 1000pF, ±20%, AC250V
⚠C814	24092555	CD, 1000pF, ±20%, AC250V
C817	24092476	CD, 330pF, ±10%, 2kV
C818	24082396	PF, 1200pF, ±3%, 1250V
C820	24092343	CD, 680pF, ±10%, 2kV
C821	24214471	CD, 470pF, ±10%, 500V
C823	24214471	CD, 470pF, ±10%, 500V
C829	24591182	PF, 0.0018μF
C832	24666470	EL, 47μF, ±20%, 16V
C841	24667100	EL, 10μF, ±20%, 25V
C842	24666100	EL, 10μF, ±20%, 16V
C843	24591104	PF, 0.1μF
C884	24640018	EL, 220μF, ±20%, 160V
C889	24667102	EL, 1000μF, ±20%, 25V
C891	24082229	PF, 0.1μF, ±10%, 250V
C893	24092338	CD, 270pF, ±10%, 2kV
C899	24212271	CD, 270pF, ±10%
C902	24092345	CD, 1000pF, ±10%, 2kV
C904	24781391	Chip, 390pF, SL
C905	24781331	Chip, 330pF, SL
C907	24781471	Chip, 470pF, SL
C910	24669478	EL, 0.47μF, ±20%, 50V
C912	24763102	EL, 1000μF, ±20%, 16V
C913	24794100	EL, 10μF, ±20%, 16V
C971	24794470	EL, 47μF, ±20%, 16V
CA01	24473330	CD, 33pF
CA02	24473330	CD, 33pF
CA10	24815331	CD, 330pF, ±10%
CA22	24781100	Chip, 10pF, ±0.5pF%, SL
CA23	24781100	Chip, 10pF, ±0.5pF%, SL
CA24	24781100	Chip, 10pF, ±0.5pF%, SL
CA25	24781100	Chip, 10pF, ±0.5pF%, SL
CA33	24814103	Chip, 0.01μF, +80%, -20%
CA37	24781101	Chip, 100pF, SL
CA38	24781101	Chip, 100pF, SL
CA42	24794100	EL, 10μF, ±20%, 16V
CA43	24591104	PF, 0.1μF
CA51	24815472	Chip, 0.0047μF, ±10%
CA52	24781561	Chip, 560pF, SL
CA53	24781181	Chip, 180pF, SL
CA54	24794330	EL, 33μF, ±20%, 16V
CA55	24797010	EL, 1μF, ±20%, 50V
CA68	24794100	EL, 10μF, ±20%, 16V

Location No.	Part No.	Description
CA69	24814103	Chip, 0.01μF, +80%, -20%
CB01	24794470	EL, 47μF, ±20%, 16V
CB20	24781101	Chip, 100pF, SL
CB21	24815221	CD, 220pF, ±10%
CS02	24794100	EL, 10μF, ±20%, 16V
CS05	24794100	EL, 10μF, ±20%, 16V
CS08	24797229	EL, 2.2μF, ±20%, 50V
CV10	24793471	EL, 470μF, ±20%, 10V
CV11	24797010	EL, 1μF, ±20%, 50V
CV12	24206228	EL, 0.22μF, ±20%, 50V
RESISTORS		
R101	24872682	Chip, 6800 ohm, 1/16W
R102	24872121	Chip, 120 ohm, 1/16W
R103	24872472	Chip, 4700 ohm, 1/16W
R104	24872151	Chip, 150 ohm, 1/16W
R105	24872681	Chip, 680 ohm, 1/16W
R108	24000245	MF, 33k ohm, ±1%, 1/4W
R109	24000245	MF, 33k ohm, ±1%, 1/4W
R110	24872221	Chip, 220 ohm, 1/16W
R111	24872223	Chip, 22k ohm, 1/16W
R113	24872333	Chip, 33k ohm, 1/16W
R114	24872333	Chip, 33k ohm, 1/16W
R115	24366225	CF, 2.2M ohm
R116	24942226	CC, 22M ohm, 1/2W
R117	24872221	Chip, 220 ohm, 1/16W
R118	24872153	Chip, 15k ohm, 1/16W
R119	24872563	Chip, 56k ohm, 1/16W
R120	24872101	Chip, 100 ohm, 1/16W
R121	24872101	Chip, 100 ohm, 1/16W
R122	24872101	Chip, 100 ohm, 1/16W
R123	24871103	Chip, 10k ohm, 1/8W
R124	24872103	Chip, 10k ohm, 1/16W
R126	24872103	Chip, 10k ohm, 1/16W
R127	24872101	Chip, 100 ohm, 1/16W
R128	24872221	Chip, 220 ohm, 1/16W
R129	24872181	Chip, 180 ohm, 1/16W
R130	24872331	Chip, 330 ohm, 1/16W
R132	24366101	CF, 100 ohm
R133	24872272	Chip, 2700 ohm, 1/16W
R134	24366221	CF, 220 ohm
R144	24872152	Chip, 1500 ohm, 1/16W
R145	24872152	Chip, 1500 ohm, 1/16W
R151	24872473	Chip, 47k ohm, 1/16W
R152	24872222	Chip, 2200 ohm, 1/16W
R153	24872222	Chip, 2200 ohm, 1/16W
R154	24872682	Chip, 6800 ohm, 1/16W
R156	24553153	OMF, 15k ohm, 1W
R157	24872473	Chip, 47k ohm, 1/16W
R167	24872151	Chip, 150 ohm, 1/16W
R170	24872390	Chip, 39 ohm, 1/16W
R180	24000824	Chip, Jumper, 2125 type
R209	24872222	Chip, 2200 ohm, 1/16W
R216	24872224	Chip, 220k ohm, 1/16W
R218	24872104	Chip, 100k ohm, 1/16W
R227	24872303	Chip, 30k ohm, 1/16W
R228	24872271	Chip, 270 ohm, 1/16W
R229	24872271	Chip, 270 ohm, 1/16W
R230	24872271	Chip, 270 ohm, 1/16W
R233	24872100	Chip, 10 ohm, 1/16W
R301	24366102	CF, 1k ohm
R304	24872473	Chip, 47k ohm, 1/16W
R305	24322209	MF, 2 ohm, 1W
R306	24366513	CF, 51k ohm

Location No.	Part No.	Description
R307	24872304	Chip, 300k ohm, 1/16W
R308	24366102	CF, 1k ohm
R312	24552222	OMF, 2200 ohm, 1/2W
R313	24872134	Chip, 130k ohm, 1/16W
R333	24339569	MF, 5.6 ohm, 2W
R336	24383331	OMF, 330 ohm, 2W
R370	24310189	MF, 1.8 ohm, 1/2W
R371	24872562	Chip, 5600 ohm, 1/16W
R372	24872392	Chip, 3900 ohm, 1/16W
R373	24872102	Chip, 1k ohm, 1/16W
R374	24872163	Chip, 16k ohm, 1/16W
R402	24872102	Chip, 1k ohm, 1/16W
R405	24872104	Chip, 100k ohm, 1/16W
R408	24871472	Chip, 4700 ohm, 1/8W
R409	24872822	Chip, 8200 ohm, 1/16W
R410	24872181	Chip, 180 ohm, 1/16W
R411	24366561	CF, 560 ohm
R416	24019323	OMF, 1800 ohm, 5W
R421	24872391	Chip, 390 ohm, 1/16W
R430	24366103	CF, 10k ohm
R432	24531120	FR, 12 ohm, 1/2W
R433	24366562	CF, 5600 ohm
R434	24552271	OMF, 270 ohm, 1/2W
R435	24872182	Chip, 1800 ohm, 1/16W
R442	24383331	OMF, 330 ohm, 2W
R447	24553472	OMF, 4700 ohm, 1W
R448	24310129	OMF, 1.2 ohm, 1/2W
R490	24366101	CF, 100 ohm
R511	24000416	Chip, 5600 ohm, ±1%, 1/16W
R523	24872303	Chip, 30k ohm, 1/16W
R526	24872821	Chip, 820 ohm, 1/16W
R527	24872821	Chip, 820 ohm, 1/16W
R528	24872821	Chip, 820 ohm, 1/16W
R602	24871101	Chip, 100 ohm, 1/8W
R603	24872162	Chip, 1600 ohm, 1/16W
R604	24872562	Chip, 5600 ohm, 1/16W
R605	24871339	Chip, 3.3 ohm, 1/8W
R606	24872393	Chip, 39k ohm, 1/16W
R607	24872332	Chip, 3300 ohm, 1/16W
R608	24872104	Chip, 100k ohm, 1/16W
R612	24872103	Chip, 10k ohm, 1/16W
R621	24871222	Chip, 2200 ohm, 1/8W
R622	24872101	Chip, 100 ohm, 1/16W
⚠R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R802	24383123	OMF, 12k ohm, 2W
R803	24383123	OMF, 12k ohm, 2W
R804	24366334	CF, 330k ohm
R805	24872681	Chip, 680 ohm, 1/16W
R807	24366334	CF, 330k ohm
⚠R808	24019476	PTC Thermistor, 18 ohm, AC290V
R809	24872393	Chip, 39k ohm, 1/16W
R810	24568229	Cement, 2.2 ohm, 7W
R814	24872103	Chip, 10k ohm, 1/16W
R815	24366332	CF, 3300 ohm
R816	24872471	Chip, 470 ohm, 1/16W
R819	24872331	Chip, 330 ohm, 1/16W
R820	24338398	MF, 0.39 ohm, 1W
R821	24381100	OMF, 10 ohm, 1/2W
R823	24872272	Chip, 2700 ohm, 1/16W
R824	24568271	Cement, 270 ohm, 7W
R829	24338398	MF, 0.39 ohm, 1W
R830	24546569	FR, 5.6 ohm, 1/2W

Location No.	Part No.	Description
R831	24872471	Chip, 470 ohm, 1/16W
R840	24531120	FR, 12 ohm, 1/2W
R883	24552821	OMF, 820 ohm, 1/2W
R884	24872681	Chip, 680 ohm, 1/16W
R888	24546228	FR, 0.22 ohm, 1/2W
R891	24872102	Chip, 1k ohm, 1/16W
R899	24005014	MF, 8.2M ohm, 1W
R901	24552122	OMF, 1200 ohm, 1/2W
R902	24552122	OMF, 1200 ohm, 1/2W
R903	24552122	OMF, 1200 ohm, 1/2W
R904	24872472	Chip, 4700 ohm, 1/16W
R905	24872150	Chip, 15 ohm, 1/16W
R914	24366101	CF, 100 ohm
R915	24872681	Chip, 680 ohm, 1/16W
R917	24872102	Chip, 1k ohm, 1/16W
R920	24000568	FR, 4.7 ohm, 1W
R921	24872101	Chip, 100 ohm, 1/16W
R922	24872681	Chip, 680 ohm, 1/16W
R925	24872102	Chip, 1k ohm, 1/16W
R928	24872101	Chip, 100 ohm, 1/16W
R929	24872681	Chip, 680 ohm, 1/16W
R931	24872229	Chip, 2.2 ohm, 1/16W
R936	24872272	Chip, 2700 ohm, 1/16W
R937	24872102	Chip, 1k ohm, 1/16W
R938	24552560	OMF, 56 ohm, 1/2W
R960	24383183	OMF, 18k ohm, 2W
R961	24554183	OMF, 18k ohm, 2W
R963	24383183	OMF, 18k ohm, 2W
R972	24872102	Chip, 1k ohm, 1/16W
R974	24872102	Chip, 1k ohm, 1/16W
R977	24366681	CF, 680 ohm
RA02	24872102	Chip, 1k ohm, 1/16W
RA04	24871102	Chip, 1k ohm, 1/8W
RA05	24871102	Chip, 1k ohm, 1/8W
RA06	24871102	Chip, 1k ohm, 1/8W
RA07	24872102	Chip, 1k ohm, 1/16W
RA08	24872102	Chip, 1k ohm, 1/16W
RA09	24871102	Chip, 1k ohm, 1/8W
RA10	24871102	Chip, 1k ohm, 1/8W
RA12	24872103	Chip, 10k ohm, 1/16W
RA13	24872102	Chip, 1k ohm, 1/16W
RA14	24872103	Chip, 10k ohm, 1/16W
RA14	24872153	Chip, 15k ohm, 1/16W (14N1XR/14N1XRP/14N1XRY)
RA15	24872103	Chip, 10k ohm, 1/16W
RA15	24872752	Chip, 7500 ohm, 1/16W (14N1XR/14N1XRP/14N1XRY)
RA16	24872102	Chip, 1k ohm, 1/16W
RA17	24872102	Chip, 1k ohm, 1/16W
RA18	24872102	Chip, 1k ohm, 1/16W
RA19	24872221	Chip, 220 ohm, 1/16W
RA21	24872821	Chip, 820 ohm, 1/16W
RA22	24871682	Chip, 6800 ohm, 1/8W
RA23	24871682	Chip, 6800 ohm, 1/8W
RA24	24871682	Chip, 6800 ohm, 1/8W
RA25	24871222	Chip, 2200 ohm, 1/8W
RA26	24872102	Chip, 1k ohm, 1/16W
RA27	24872102	Chip, 1k ohm, 1/16W
RA31	24872101	Chip, 100 ohm, 1/16W
RA32	24872101	Chip, 100 ohm, 1/16W
RA33	24871103	Chip, 10k ohm, 1/8W
RA35	24872102	Chip, 1k ohm, 1/16W
RA36	24872103	Chip, 10k ohm, 1/16W
RA37	24872331	Chip, 330 ohm, 1/16W

Location No.	Part No.	Description
RA38	24872331	Chip, 330 ohm, 1/16W
RA39	24871102	Chip, 1k ohm, 1/8W
RA40	24872102	Chip, 1k ohm, 1/16W
RA41	24872102	Chip, 1k ohm, 1/16W
RA42	24872103	Chip, 10k ohm, 1/16W
RA50	24872223	Chip, 22k ohm, 1/16W
RA51	24872392	Chip, 3900 ohm, 1/16W
RA52	24366392	CF, 3900 ohm
RA53	24872123	Chip, 12k ohm, 1/16W
RA54	24872471	Chip, 470 ohm, 1/16W
RA55	24872333	Chip, 33k ohm, 1/16W
RA56	24872564	Chip, 560k ohm, 1/16W
RA57	24872182	Chip, 1800 ohm, 1/16W
RA60	24872103	Chip, 10k ohm, 1/16W
RA61	24872103	Chip, 10k ohm, 1/16W
RA62	24872103	Chip, 10k ohm, 1/16W
RA64	24872333	Chip, 33k ohm, 1/16W (14N1XR/14N1XRP/14N1XRY)
RA65	24872333	Chip, 33k ohm, 1/16W (14N1XR/14N1XRP/14N1XRY)
RA67	24872103	Chip, 10k ohm, 1/16W
RA68	24872103	Chip, 10k ohm, 1/16W
RA69	24872103	Chip, 10k ohm, 1/16W
RA70	24871333	Chip, 33k ohm, 1/8W
RA71	24872103	Chip, 10k ohm, 1/16W
RA73	24872223	Chip, 22k ohm, 1/16W
RA74	24872103	Chip, 10k ohm, 1/16W
RA75	24872103	Chip, 10k ohm, 1/16W
RA76	24872102	Chip, 1k ohm, 1/16W
RB01	24872271	Chip, 270 ohm, 1/16W
RB09	24872470	Chip, 47 ohm, 1/16W
RB11	24872103	Chip, 10k ohm, 1/16W
RB20	24872823	Chip, 82k ohm, 1/16W
RB22	24872472	Chip, 4700 ohm, 1/16W
RB26	24872472	Chip, 4700 ohm, 1/16W
RB27	24872103	Chip, 10k ohm, 1/16W
RB28	24872104	Chip, 100k ohm, 1/16W
RB30	24872103	Chip, 10k ohm, 1/16W
RB43	24871103	Chip, 10k ohm, 1/8W
RB44	24872682	Chip, 6800 ohm, 1/16W
RB45	24872221	Chip, 220 ohm, 1/16W
RS02	24872471	Chip, 470 ohm, 1/16W
RS03	24872103	Chip, 10k ohm, 1/16W
RS05	24872223	Chip, 22k ohm, 1/16W
RS06	24366102	CF, 1k ohm
RV01	24872750	Chip, 75 ohm, 1/16W
RV02	24366101	CF, 100 ohm
RV11	24872750	Chip, 75 ohm, 1/16W
RV12	24366391	CF, 390 ohm
RV13	24872101	Chip, 100 ohm, 1/16W
RV14	24872102	Chip, 1k ohm, 1/16W
RV15	24872102	Chip, 1k ohm, 1/16W
RV16	24872471	Chip, 470 ohm, 1/16W

COILS & TRANSFORMERS

L101	23289680	Coil, Peaking, TRF4680AF
L102	23238560	Coil, Peaking, TRF4R68AJ
L103	23238560	Coil, Peaking, TRF4R68AJ
L106	23289829	Coil, Peaking, TRF48R2AF
L107	23289689	Coil, Peaking, TRF4680AF
L108	23289180	Coil, Peaking, TRF4180AF
L161	23262291	Coil, IF, TRF1241AF
L183	23289120	Coil, Peaking, TRF4120AF
L301	23103859	Coil (Ferrite Bead), TEM2011
L430	23289470	Coil, Peaking, TRF4470AF
L431	23289229	Coil, Peaking, TRF42R2AF
L432	23289229	Coil, Peaking, TRF42R2AF
L462	23231263	Deflection Yoke, TDY-314PV
L499	23238713	Coil, Peaking, TRF4120AJ
L511	23289100	Coil, Peaking, TRF4100AF
L525	23289100	Coil, Peaking, TRF4100AF
L805	23248227	Coil, Choke, TLN3481AD
L806	23248227	Coil, Choke, TLN3481AD
L811	23103859	Coil (Ferrite Bead), TEM2011
L814	23221747	Coil, Choke, TRF9253D
L885	23248230	Coil, Choke, TLN3142AC
⚠L901	23200304	Coil, Degaussing, TSB-2360AL
LA01	23289100	Coil, Peaking, TRF4100AF
LA02	23289330	Coil, Peaking, TRF4330AF
T401	23224983	Transformer, Horiz. Drive, TLN1039
⚠T461	23236534	Transformer, Flyback, TFB4122CY
⚠T801	23211722	Line Filter, TRF3148BQ
⚠T862	23217450	Transformer, Converter, TPW3440AD

SEMICONDUCTORS

Q101	23314776	Transistor, 2SC4771K(MN)
Q102	A6365620	Transistor, 2SC4116-Y
Q108	A6549570	Transistor, 2SA1586-Y
Q110	23000174	IC, NJM2234L
Q130	A6359860	Transistor, 2SC3326-A
Q131	23314962	Transistor, KTA1266 Y
Q209	A6365620	Transistor, 2SC4116-Y
Q301	B0377890	IC, TA8403K
Q301B	72471081	Screw, BRDT2W3X8 SZN
Q370	A6549570	Transistor, 2SA1586-Y
Q402	A6330069	Transistor, 2CS2482 FA-1
Q404	A6873824	Transistor, 2SD2599
Q404B	72471082	Screw, BRDT2W3X10 SZN
Q404C	23742030	Screw, N3X.5SZN
Q421	23314141	Transistor, 2SC3852
Q430	23314980	Transistor, 2SD2549 P
Q430B	70391355	Screw, BITTB3X8 SZN
Q610	23119668	IC, TDA2611A
Q610B	70391355	Screw, BITTB3X8 SZN
Q611	A6359870	Transistor, 2SC3326-B
Q612	A6549570	Transistor, 2SA1586-Y
Q620	A6014040	Transistor, RN2404
Q621	A6365620	Transistor, 2SC4116-Y
Q801	23135010	IC, STR-G6653
Q801B	70391355	Screw, BITTB3X8 SZN
Q819	A6365620	Transistor, 2SC4116-Y
Q830	23314141	Transistor, 2SC3852
Q830B	70391355	Screw, BITTB3X8 SZN
Q840	23318299	IC, L78MR05
⚠Q862	23906937	Photo Coupler, ON3171-R
Q883	A6907894	IC, S1854A(FA4)
Q901	A6330059	Transistor, 2SC2482(C)
Q903	A6330059	Transistor, 2SC2482(C)
Q905	A6330059	Transistor, 2SC2482(C)
Q907	23314962	Transistor, KTA1266 Y
Q908	A6321240	Transistor, 2SC2120-Y
QA01	23000951	IC, TMP87CK87N-1D77
QA02	23906922	IC, CAT24C04P
QA51	A6365620	Transistor, 2SC4116-Y
QA52	A6549570	Transistor, 2SA1586-Y

Location No.	Part No.	Description
QB01	A6365620	Transistor, 2SC4116-Y
QB09	A6365620	Transistor, 2SC4116-Y
QB10	A6365620	Transistor, 2SC4116-Y
QB20	A6004010	Transistor, RN1401
QB21	A6365620	Transistor, 2SC4116-Y
QB40	A6365620	Transistor, 2SC4116-Y
QB60	A6365620	Transistor, 2SC4116-Y
QB61	A6365620	Transistor, 2SC4116-Y
QS01	A6359870	Transistor, 2SC3326-B
QV10	23314965	Transistor, KTC3198 Y
QV11	A6365620	Transistor, 2SC4116-Y
MISCELLANEOUS		
D101	23115922	Diode, Zener, μPC574J(D)
D102	23118859	Diode, 1SS133
D103	23118041	Diode, MA111-(TX)
D111	23357168	Diode, Zener, UDZSTE176.2B
D150	23118138	Diode, MA77-(TX)
D224	23118041	Diode, MA111-(TX)
D301	23118479	Diode, BYD33J
D302	23118479	Diode, BYD33J
D370	23118630	Diode, Zener, RD3.6ESA B1
D371	23118859	Diode, 1SS133
D406	23118479	Diode, BYD33J
D408	23118479	Diode, BYD33J
D421	23118622	Diode, Zener, RD10ESA B2
D431	23118622	Diode, Zener, RD10ESA B2
D433	23118041	Diode, MA111-(TX)
D436	23118041	Diode, MA111-(TX)
D441	23118529	Diode, Zener, RD5.6ESA B2
D490	23118041	Diode, MA111-(TX)
D498	23118041	Diode, MA111-(TX)
D610	23118859	Diode, 1SS133
D612	23118041	Diode, MA111-(TX)
D620	23118041	Diode, MA111-(TX)
D621	23118859	Diode, 1SS133
D622	23118859	Diode, 1SS133
D801	23118173	Diode, RBV-406M, LA
D805	23118859	Diode, 1SS133
D806	23118094	Diode, EU2A, LF-F10
D809	23118529	Diode, Zener, RD5.6ESA B2
D812	23118094	Diode, EU2A, LF-F10
D815	23118616	Diode, Zener, RD27ESA B2
D817	23118041	Diode, MA111-(TX)
D819	23357169	Diode, Zener, UDZSTE176.8B
D820	23118507	Diode, Zener, RD13ESA B3
D821	23118859	Diode, 1SS133
D830	23118532	Diode, Zener, RD5.1ESA B2
D883	23118094	Diode, EU2A, LF-F10
D885	23118094	Diode, EU2A, LF-F10
D901	23118041	Diode, MA111-(TX)
D904	23118041	Diode, MA111-(TX)
D905	23118041	Diode, MA111-(TX)
D906	23118041	Diode, MA111-(TX)
DA42	23357168	Diode, Zener, UDZSTE176.2B
DB01	23358541	Diode (LED), 4343VRT
DS01	23118041	Diode, MA111-(TX)
MISCELLANEOUS		
E912	23848729	Rubber Wedge
⚠F470	23144826	Fuse, 0.5A
F470A	23165433	Holder, Fuse
⚠F801	23144834	Fuse, 3.15A
F801A	23165433	Holder, Fuse

Location No.	Part No.	Description
F802	23144870	Fuse, 2.0A, 250V
F802A	23165433	Holder, Fuse
G218	24000824	Chip Jumper, 2125Type
G303	24310109	MF, 1.0 ohm, 1/2W
G410	23103859	Coil (Ferrite Bead), TEM2011
G810	23103859	Coil (Ferrite Bead), TEM2011
G882	23118635	Diode, Zener, RD2.7ESA B2
G883	23118859	Diode, 1SS133
G941	24000824	Chip Jumper, 2125Type
G942	24000824	Chip Jumper, 2125Type
G943	24000824	Chip Jumper, 2125Type
GA02	24366470	CF, 47 ohm
GA21	24000824	Chip Jumper, 2125Type
GA22	24000824	Chip Jumper, 2125Type
GA23	24000824	Chip Jumper, 2125Type
GA24	24000824	Chip Jumper, 2125Type
GJ01	24000824	Chip Jumper, 2125Type
GJ04	24000824	Chip Jumper, 2125Type
GJ07	24000824	Chip Jumper, 2125Type
GJ08	24000824	Chip Jumper, 2125Type
GJ19	24000576	Chip Jumper, 3216 type
GJ35	24000824	Chip Jumper, 2125Type
JR01	24000824	Chip Jumper, 2125Type
JR02	24000824	Chip Jumper, 2125Type
JR03	24000576	Chip Jumper, 3216 type
JR04	24000824	Chip Jumper, 2125Type
JR05	24000576	Chip Jumper, 3216 type
JR06	24000824	Chip Jumper, 2125Type
JR07	24000824	Chip Jumper, 2125Type
JR08	24000824	Chip Jumper, 2125Type
JR09	24000824	Chip Jumper, 2125Type
JR10	24000576	Chip Jumper, 3216 type
JR14	24000824	Chip Jumper, 2125Type
JR15	24000576	Chip Jumper, 3216 type
JR16	24000824	Chip Jumper, 2125Type
JR17	24000576	Chip Jumper, 3216 type
JR18	24000824	Chip Jumper, 2125Type
JR19	24000824	Chip Jumper, 2125Type
JR20	24000824	Chip Jumper, 2125Type
JR21	24000576	Chip Jumper, 3216 type
JR22	24000824	Chip Jumper, 2125Type
JR23	24000576	Chip Jumper, 3216 type
JR24	24000576	Chip Jumper, 3216 type
JR25	24000824	Chip Jumper, 2125Type
JR26	24000576	Chip Jumper, 3216 type
JR27	24000576	Chip Jumper, 3216 type
JR28	24000576	Chip Jumper, 3216 type
JR29	24000576	Chip Jumper, 3216 type
JR30	24000576	Chip Jumper, 3216 type
JR31	24000824	Chip Jumper, 2125Type
JR32	24000824	Chip Jumper, 2125Type
JR33	24000576	Chip Jumper, 3216 type
KB01	23904946	Remote Sensor, RPM-676CBR-S
⚠P801	23372096	Power Cord
⚠P801	23372023	Power Cord (14N1XH/14N1XHP/14N1XHY)
P910	23164725	Plug, 2P
PV01	23365814	Jack, Phono, 4P
⚠S801	23344429	Switch, Power
SA02	23145226	Switch, Push, 1C1P
SA03	23145226	Switch, Push, 1C1P
SA04	23145226	Switch, Push, 1C1P
⚠V901A	23903142	Socket, CRT

Location No.	Part No.	Description
V901M	23102409	Magnet, P/C, MAG-1070
W661	23351113	Speaker, SPK-1380, 77X77mm, 16 ohm
X501	23153979	Crystal, 4.43MHz
XA01	23153436	Ceramic Resonator, EF0EC8004
Z101	23303188	Ceramic Trap, TCF1113
Z102	23303191	Ceramic Trap, TCF1116
Z103	23107976	Ceramic Video Trap, 4.5MHz, TPS4.5MC2
Z104	23303072	Ceramic Filter, 6.5MHz, TCF1089
Z130	23303230	Filter, 38MHZ, F816KPL
ZT01	23153736	Ceramic Resonator, TCR1025
PC BOARD ASSEMBLIES		
* U902A		Main Board, PB9282-1 (14N1XE/14N1XEP/14N1XEY)
* U902A		Main Board, PB9319-1 (14N1XH/14N1XHP/14N1XHY)
* U902A		Main Board, PB9320-1 (14N1XRY/14N1XRP/14N1XR)
* U902B		CRT Drive Board, PB9282-2 (14N1XE/14N1XEP/14N1XEY)
* U902B		CRT Drive Board, PB9319-2 (14N1XH/14N1XHP/14N1XHY)
* U902B		CRT Drive Board, PB9320-2 (14N1XRY/14N1XRP/14N1XR)
* U902C		Remote Board, PB9282-3 (14N1XE/14N1XEP/14N1XEY)
* U902C		Remote Board, PB9319-3 (14N1XH/14N1XHP/14N1XHY)
* U902C		Remote Board, PB9320-3 (14N1XRY/14N1XRP/14N1XR)
PICTURE TUBE		
⚠V901	23312854	Picture Tube, A34LTE71X(VW (14N1XE/14N1XEP/14N1XEY)
⚠V901	23312853	Picture Tube, A34LTE70X(VW (14N1XR/14N1XRP/14N1XRY)
TUNER		
H001	23321351	Tuner, ECA14X9
ACCESSORIES		
K902	23306237	Remote Hand Unit, CT-9922
AT03	23588217	Battery Cover
Y101A	23563824	Owner's Manual, English, 14N1XE/XEP/XEY/XH
Y101A	23563860	Owner's Manual, English, 14N1XR/14N1XRP/14N1XRY
Y101A	23563872	Owner's Manual, English, 14N1XHP/14N1XHY
Y101B	23563861	Owner's Manual, Russian, 14N1XR/14N1XRP/14N1XRY
Y101B	23563862	Owner's Manual, Cantonese, 14N1XH/14N1XHP/14N1XHY
Y120	23943846	Cover, Poly

Location No.	Part No.	Description
CABINET PARTS		
A201	23549744	Front Cover (14N1XE)
A201	23549847	Front Cover (14N1XEP/14N1XHP/14N1XRP)
A201	23549848	Front Cover (14N1XEY/14N1XHY/14N1XRY)
A201	23549850	Front Cover (14N1XH)
A201	23549853	Front Cover (14N1XR)
A262	23445345	Button, Control (14N1XE)
A263	23445346	Button, Power (14N1XE)
A263	23445365	Button, Power1 (14N1XHP/14N1XRP)
A263	23445366	Button, Power2 (14N1XEY/14N1XHY/14N1XRY)
A267	23836867	Spring, Coil
⚠A401	23549745	Back Cover
A403	23550994	Label, Model No. 14N1XE
A403	23564053	Label, Model No. 14N1XEP
A403	23564054	Label, Model No. 14N1XEY
A403	23564055	Label, Model No. 14N1XHP
A403	23564056	Label, Model No. 14N1XH
A403	23564057	Label, Model No. 14N1XHY
A403	23564059	Label, Model No. 14N1XR
A403	23564060	Label, Model No. 14N1XRY
A403	23564061	Label, Model No. 14N1XRP
A521	23037312	Screw, BTBW3X12SZN
A523	23035412	Screw, BTB4X12SZN
A701	23064078	Case(14N1XE)
A701	23064109	Case(14N1XEP)
A701	23064110	Case(14N1XEY)
A701	23064112	Case(14N1XH)
A701	23064113	Case(14N1XHY)
A701	23064115	Case(14N1XR)
A701	23064116	Case(14N1XRY)
A701	23064159	Case(14N1XHP)
A701	23064185	Case(14N1XRP)
A702A	23935960	Packing, Top
A702B	23935961	Packing, Bottom
A704	23945049	Bag

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SPECIFICATIONS (Representative: 14N1XE)

Television system and channel coverage (Aerial input) ● available – not available

SYSTEM	CHANNEL		
PAL B/G	CCIR	VHF 2-12, UHF 21-69, CATV*1	●
PAL D/K	CHINA	VHF 1-12, UHF 13-57, CATV*2	●
PAL I	UK	UHF 21-69	●
SECAM B/G	CCIR	VHF 2-12, UHF 21-69, CATV*1	●
SECAM D/K	OIRT	VHF 1-12, UHF 21-69, CATV*3	●
NTSC M	US	VHF 2-13, UHF 14-69, CATV*4	●
NTSC 4.43	–	5.5/6.0/6.5MHz	●
NTSC 3.58	–	5.5/6.0/6.5MHz	●
PAL 60Hz	–	5.5/6.0/6.5MHz	●
NTSC 3.58 50Hz	–	4.5MHz	●
		*1 X~Z+2, S1~S41	*2 Z-1~Z-38
		*3 X1~X19	*4 A-6~A-1, A~W, AA~BBB

Colour system (Video input)

PAL	50/60Hz	●
SECAM	50Hz	–
3.58NTSC	50/60Hz	●
4.43NTSC	50/60Hz	●

Power consumption (W) (at 220V AC, 50Hz)	60W
Sound output (W)	3W

Rated voltage: 110-240V AC 50/60Hz
Terminals: Input: Video/Audio (monaural)
TV output: Video/Audio (monaural)
Speaker: 7.7 cm Round (1)
Picture tube Type 14 (36cm) Overall picture tube measured diagonally
(34cm) Viewable picture tube measured diagonally
90° deflection

Dimensions: 346.3 (W) X 306.6 (H) X 371 (D) mm
Mass: 9.0kg (Approx.)
Supplied accessories: Remote controller (1)
Batteries size AA (R6) (2)

* Please refer to owner's manual in detail.

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